

REMARKS

In the Office Action dated July 23, 2004, claims 15-34 were presented for examination. Claims 28-34 were objected to as containing informalities. Claims 18-21, 30, and 31 were rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. Claims 23-30 and 34 were rejected under 35 U.S.C. §102(b) as being anticipated by *Smith*. Claims 23-30 and 34 were rejected under 35 U.S.C. §102(b) as being anticipated by *Lotz et al.* Claims 23, 24, 26, and 27 were rejected under 35 U.S.C. §102(b) as being anticipated by *Babcock*. Claims 15-31 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Hughey* in view of either *Smith* or *Lotz et al.*, and claims 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Smith* or *Lotz et al.* and further in view of *Pearl II et al.*

Applicant wishes to thank the Examiner for the careful and thorough review and action on the merits in this application. The following remarks are provided in support of the pending claims and responsive to the Office Action of July 23, 2004 for the pending application.

I. Objection of claims 28-34

In the Office Action dated July 23, 2004, the Examiner objected to claims 28-34 based on an informality. More specifically, the Examiner indicated that the term "Increasing gas pressure of oxygen" is unclear since prior to this clause of the claim there is no introduction of the term "oxygen". Applicant has amended the term "Increasing" to "Employing" in claim 28 to more specifically indicate the pressure of the oxygen being introduced. This amendment to claim 28 appears to remove any issues of proper antecedent basis with respect to the introduction of oxygen and the association pressure of the oxygen gas. Accordingly, Applicant respectfully requests that the Examiner remove the objection to claim 28 and the associated dependent claims 29-34.

II. Rejection of claims 18-21, 30 and 31 under 35 U.S.C. §112, first paragraph

In the Office Action dated July 23, 2004, the Examiner rejected claims 18-21, 30 and 31 under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. More specifically, the Examiner rejected the provision of the cut rate of the torch in relation to the torch movement rate. Applicant has amended claims 18-21, 30, and 31 to specify the rate at which the exposed metal is being cut, and not the rate at which the torch is being advanced. Applicant has support in the application for the rates which are in the noted claims. Specifically, Applicant discusses a "cut rate of 13 feet in 90 seconds" on page 5, line 5 of the specification. Accordingly, in view of the amendments made to the above noted claims, Applicant respectfully requests the Examiner to remove the rejection to claims 18-21, 30, and 31.

III. Rejection of claims 23-30 and 34 under 35 U.S.C. §102(b) as being anticipated by *Smith*

In the Office Action dated July 23, 2004, the Examiner rejected claims 23-30 and 34 under 35 U.S.C. §102(b) as being anticipated by *Smith*. The *Smith* patent ('499) relates to a method for cutting metal that incorporates the use of a blowpipe to deliver a flame to the associated metal. More specifically, *Smith* teaches a method utilizing an oxygen source and a fuel source, such as acetylene, see Page 2, Col. 2, line 73, that are delivered to the blowpipe by separate hoses for preheating purposes. In addition, a low temperature oxygen may be provided to the blowpipe from a third hose. As indicated, the oxygen and fuel mixture is supplied to a blow pipe. The temperature and pressure at which the oxygen is supplied to the blowpipe is determinative of the velocity and the width of the exiting jet at which the fuel will discharge from the blowpipe. Accordingly, the method of *Smith* is comprised of a blowpipe that receives an oxygen-fuel mixture in a temperature range to provide a desired velocity for delivery of a flame emitting from the blowpipe and being applied to cut metal.

Applicant's invention consists of a two part cutting tip that is fueled with a combustible

gas and oxygen. A two part cutting tip is a term of art associated with cutting steel.¹ A blowpipe is defined as a metal tube in which a flow of gas is mixed with a controlled flow of air to concentrate the heat of a flame. However, a two part tip of a cutting torch is not the same as a blowpipe, as the two part tip cutting torch has a different structure than a blowpipe to accommodate different gas and enhance flame control. A two part tip consists of an exterior shell and a separable insert. The fuel and preheat oxygen are mixed prior to exit from the tip, and the mixed fuel and oxygen are admitted into the tip through a path formed in an annular groove between the shell and the insert. In addition, a plurality of slots are provided at an exit end of the two part tip, *i.e.* the end opposite the point of entry. As the mixture flows through the formed path, the mixture exits through the plurality of openings formed around the tip exit face. In addition, the lower end of the two part tip may either be flush with the exterior shell or recessed. The position of the lower end of the two part tip is dependent on the flame produced by the gasses. For example, the recess helps provide stable flame retention for cool gasses, such as propane and natural gas, wherein hot fuels require the insert to be flush so that the rim of the tip will not be exposed to excess heat. Accordingly, the structure of a two part tip functions to provide proper delivery of a flame.

With respect to claim 28, Applicant has amended this claim to include a limitation specifying the composition of the combustible gas. However, the only combustible gas specified by *Smith* is acetylene. See Page 2, Col. 2, line 73. As noted in Exhibit A, acetylene "is too aggressive for the two-piece design"². There is no teaching in *Smith* for the combustible gas selection provided by Applicant in amended claim 28. Furthermore, there is no teaching in *Smith* to provide a two part tip for the cutting torch, wherein the structure of the tip controls the velocity of the combustion fuel exiting the torch. In addition, there is no teaching in *Smith* to combine an acetylene system with a propane system, as claimed by Applicant, because the two cannot be combined due to the properties of each of the gases, *i.e.* the gases become unstable. In fact,

¹ See Exhibit A. Dick Manning's Plain English Guide to Flamecutting Machines, Torches and Tips, pages 1-8.

² See Exhibit A. Dick Manning's Plain English Guide to Flamecutting Machines, Torches and Tips, page 5.

acetylene cannot be delivered at a pressure greater than 15 psi as it becomes unstable at such a pressure. As noted in new claim 36, the combustible gas is delivered to the cutting torch at a rate that exceeds the rate of stability of acetylene. *Smith* does not have any support for delivery of a combustible gas in the range claimed by Applicant.

In addition, *Smith* clearly shows a blowpipe for delivery of a flame, which is not equivalent to a two part tip, that receives the oxygen-fuel combination. It is clear in *Smith* that it is the temperature of the oxygen that will control the pressure and velocity of the fuel exiting the blowpipe, not the structure of the blowpipe. However, Applicant's claim 23 includes the limitation of a "two part tip cutting torch" that is positioned and fueled to form a cut in the metal. In order for the claimed invention to be anticipated under 35 U.S.C. §102(b), the prior art must teach all claimed limitations presented by the claimed invention. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F. 2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)). As mentioned above, *Smith* does not show all of the elements as claimed by Applicant in pending claims 23-30 and 34. *Smith* also does not address the adaptability of the blow pipe to the selection of combustible gases as provided by Applicant. Rather *Smith* merely supports a blowpipe that receives an oxygen-fuel composition wherein the temperature of the oxygen is determinative of the exiting velocity of the flame from the blowpipe. Accordingly, *Smith* clearly fails to teach the limitations pertaining to the structure of a two part tip cutting torch as presented in Applicant's pending claims 23-30 and 34.

IV. Rejection of claims 23-30 and 34 under 35 U.S.C. §102(b) as being anticipated by *Lotz et al.*

In the Office Action dated July 23, 2004, the Examiner rejected claims 23-30 and 34 under 35 U.S.C. §102(b) as being anticipated by *Lotz et al.* The *Lotz et al.* patent ('544) relates to a method and apparatus for cutting steel that incorporates the use of a high pressure oxygen cutting torch in combination with a high pressure oxygen separation nozzle blowpipe to deliver a flame to the associated metal. More specifically, the *Lotz et al.* patent teaches different nozzles

that may be substituted for use with the cutting torch. For example, Fig. 3 of *Lotz et al.* shows an oxygen separation nozzle adapted to create a double cutting jet 17, and Fig. 4 of *Lotz et al.* shows another form of a separation nozzle. The distinction between the inventions of *Lotz et al.* and Applicant is in the nozzle that is applied to the distal end of the torch to disperse a flame. A torch, as disclosed in *Lotz et al.*, has a nozzle known as a cutting tip installed at the lower end thereof. A cutting torch with a nozzle is different from a two part cutting tip. The combination of the torch and nozzle of *Lotz et al.* enables the oxygen and fuel to combine and mix following dispersion from the nozzle, whereas the two part tip of Applicant, as claimed by Applicant and the structure of which is further explained as a term of art in Exhibit A, allows the oxygen and fuel to mix prior to exit from the tip. It is clear that the torch and nozzle of *Lotz et al.* is not a two part cutting tip or an equivalent thereof. The tip of Applicant is not equivalent to the combination of the torch and nozzle of *Lotz et al.* The tip is a portion of the tool that produces the flame. Accordingly, *Lotz et al.* does not teach all of the elements, or an equivalent thereof, of the two part tip as claimed by Applicant.

Applicant hereby incorporates by reference the detailed explanation of Applicant's two part tip as discussed in Section II of this response.

In order for the claimed invention to be anticipated under 35 U.S.C. §102(b), the prior art must teach all claimed limitations presented by the claimed invention. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F. 2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)). As mentioned above, *Lotz et al.* does not show all of the elements as claimed by Applicant in pending claims 23-30 and 34. Specifically, *Lotz et al.* does not teach or support use of a two part tip cutting torch in place of a torch in combination with a nozzle at a distal end thereof, wherein the structure of the two part tip is determinative of the velocity and associated pressure of the flame. Rather *Lotz et al.* supports a torch with a nozzle at a distal end thereof that receives an oxygen-fuel composition mixture and produces a cutting flame therefrom. Accordingly, *Lotz et al.* clearly fails to teach the limitations pertaining to the structure of a two part tip cutting torch as

presented in Applicant's pending claims 23-30 and 34.

V. Rejection of claims 23, 24, 26, and 27 under 35 U.S.C. §102(b) as being anticipated by *Babcock*

In the Office Action dated July 23, 2004, the Examiner rejected claims 23, 24, 26 and 27 under 35 U.S.C. §102(b) as being anticipated by *Babcock*. The *Babcock* patent ('199) relates to a method and apparatus for cutting a metallic material with an oxygen produced flame. More specifically, the *Babcock* patent teaches a different blowpipe for mixing preheated oxygen with fuel gas and delivering the mixture to an exit nozzle. Figs. 2 and 3 illustrate alternative structures for the nozzle. Both the illustrated nozzles may be considered similar to a one part tip. However, the difference between the blowpipe-nozzle combination of *Babcock* and the two part tip as claimed by Applicant, and which is further explained at a term of art in Exhibit A, is that a blowpipe-nozzle combination receives and mixes the fuel and oxygen following dispersion therefrom, whereas the fuel and oxygen composition of Applicant mixes prior to exit from the tip. This is a significant distinction as it affects the velocity of the gas being delivered to an exit orifice. The combination of the blowpipe and nozzle of *Babcock* does not teach all of the elements, or an equivalent thereof, of the two part tip as claimed by Applicant.

Applicant hereby incorporates by reference the detailed explanation of a two part tip as discussed in Sections II and III of this response.

In order for the claimed invention to be anticipated under 35 U.S.C. §102(b), the prior art must teach all claimed limitations presented by the claimed invention. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F. 2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)). As mentioned above, *Babcock* does not show all of the elements as claimed by Applicant in pending claims 23, 24, 26, and 27. Specifically, *Babcock* does not teach or support use of a two part cutting torch in place of a torch with a nozzle at a distal end thereof, wherein the structure of the two part tip contributes to the rate of combustion. Rather *Babcock* supports a blowpipe with a nozzle at a

distal end thereof that mixes the oxygen-fuel combination following dispersion from the nozzle to produce a cutting flame therefrom. Accordingly, *Babcock* clearly fails to teach the limitations pertaining to the structure of a two part tip cutting torch as presented in Applicant's pending claims 23, 24, 26, and 27.

VI. Rejection of claims 15-31 and 34 under 35 U.S.C. §103(a) as being unpatentable over *Hughey* in view of either *Smith* or *Lotz et al.* and Rejection of claims 32 and 33 under 35 U.S.C. §103(a) as being unpatentable over *Smith* or *Lotz et al.* and further in view of *Pearl II et al.*

In the Office Action of July 23, 2004, the Examiner rejected claims 15-31 and 34 under 35 U.S.C. §103(a) as unpatentable over *Hughey*, U.S. Patent No. 2,515,302, in view of either *Smith*, U.S. Patent No. 2,205,499, or *Lotz et al.*, U.S. Patent No. 5,902,544. Additionally, the Examiner rejected claims 32 and 33 under 35 U.S.C. §103(a) as being unpatentable over *Smith* '499 or *Lotz et al.* '544 in view of *Pearl, II et al.*, U.S. Patent No. 4,661,057.

The *Hughey* patent ('302) discloses an apparatus for controlling movement between a torch and a workpiece. As shown, the torch has three inlets at a proximal end, and a bend at a distal end. There is no two part tip associated with the torch of *Hughey*. Nor is there support for a selection of combustible fuels as claimed by Applicant. The *Hughey* clearly shows a torch in communication with a tracked apparatus. However, there is no support in the patent for any additional features or improvement to the apparatus as claimed by Applicant.

The *Pearl, II et al.* patent ('057) discloses combustion apparatus in the form of a hand-held torch. The patent teaches the use of a combustible gas to enter the torch to provide a cutting flame, wherein the torch has an adapter to mix gases and to distort the exiting cutting oxygen. However, *Pearl, II et al.* does not teach the structure of the two part tip nor the associated pressures of the delivery gases as claimed by Applicant. In fact, *Pearl, II et al.* burns gases within the device, whereas a two part tip supports the burning of gases exterior to the tip. See Exhibit A.

et al. patents discussed above by reference.

With respect to claims 15-22, 27, 28-31, and 34, there is no support in *Hughey*, *Smith*, or *Lotz et al.* to provide a combustible gas from the group selection claimed by Applicant. As to claims 23-26, there is no support in *Hughey*, *Smith*, or *Lotz et al.* to provide a two part tip, or the equivalent thereof, as claimed by Applicant. The invention as noted in Applicant's claims functions on a different principle than that taught in the combination of *Hughey* with either *Smith* or *Lotz et al.* Applicant's invention, as supported in the language of the claims, includes the use of a two part cutting tip and/or accommodation for a combustible gas in the form of: propane, chemtane, propylene, MAPP, or natural gas. It is the structure of the two part tip that accommodates the selection of LP gases at the pressures indicated in the dependent claims. The two part tip avoids placing an operator of the two part tip in danger when applying at least one of the gases supported in the claims.

For it to be obvious to combine prior art references, the references must teach, suggest, or motivate one with ordinary skill in the art to combine the references and create the claimed invention. "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." MPEP §2143.01. The *Hughey* patent supports the selection of combustible gases as claimed by Applicant. However, *Hughey et al.* does not teach the structure of the two part tip to accommodate the combustible fuel as claimed by Applicant. Similarly, as discussed above, neither *Smith* nor *Lotz et al.* support either of these claimed limitations. Accordingly, the *Hughey*, *Smith*, and *Lotz et al.* patents do not individually or in combination teach or suggest the use of a two part cutting tip and/or a combustible gas as claimed by Applicant.

In fact, *Hughey*, *Smith*, and *Lotz et al.* fail to address Applicants use of combustible gases and support of a two part tip as a means of achieving improved system performance over that of the prior art. "Although a prior art device may be capable of being modified to run the way the

apparatus is claimed, there must be a suggestion or motivation in the reference to do so." MPEP §2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ 2d 1430 (Fed. Cir. 1990)). *Hughey, Smith, and Lotz et al.* do not suggest modifying the apparatus to include either of these missing limitations to accommodate the performance achieved by Applicant. To read *Hughey, Smith, or Lotz et al.* as providing the two part tip structure and/or the selection of combustible fuels would require a modification to the invention of *Hughey* not envisioned or taught. The only suggestion for a system that utilizes a two part tip in combination with the combustible fuel selection is derived from Applicant's invention. Absent Applicant's invention, there is no suggestion or motivation within the combination of *Hughey* and either *Smith* or *Lotz et al.* for such a modification. "It is impermissible to use the claimed invention as an instructions manual or template to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ 2d 1780 (Fed. Cir. 1992) (citing *In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991)). Yet this is the very process that the Examiner has attempted to undertake. Accordingly, the combination of the prior art references is improper as the Examiner's combination is precipitated by utilizing Applicant's claimed invention as the template to make the modifications suggested by the Examiner since such modifications to the prior art would make the prior art nonfunctional, which by its very nature makes such a combination non-obvious.

As to claims 32 and 33, there is no teaching or suggestion in *Pearl, II et al.* to employ a two part tip to accommodate the combustible fuels as claimed by Applicant. Although *Pearl, II et al.* teaches a torch to accommodate a combustible fuel, the torch of *Pearl II, et al.* does not include a two part tip. In fact, neither the *Smith* nor *Lotz et al.* patents include a teaching or support for a two part tip. Although the devices of *Pearl, II et al.*, *Smith*, and *Lotz et al.* may each be modified to accommodate a two part tip to provide the results attained by Applicant, the teaching, suggestion, or motivation for combining the references must emanate from the references themselves, and not from Applicant. The prior art must teach the desirability of the modification in question. "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon et al.*, 733 F.2d 900, 221 USPQ 1125, 1127 (Fed. Cir. 1984). There

is no desire within the references themselves to combine the elements of the prior art to arrive at Applicant's invention. The desirability can be found at best only through the use of Applicant's invention. Therefore, the prior art references whether taken individually or in combination do not render Applicant's invention obvious as there is no teaching, suggestion, or motivation to combine the elements found in different prior art references having different purposes to build the product of Application. Accordingly, Applicants respectfully contend that the combination of *Smith* or *Lotz et al.* in view of *Pearl, II et al.* does not meet the standard set by the CAFC's interpretation of 35 U.S.C. §103(a), and respectfully requests allowance of claims 15-34.

For the reasons outlined above, withdrawal of the rejection of record and an allowance of this application are respectfully requested.

Respectfully submitted,

By:



Rochelle Lieberman
Registration No. 39,276
Attorney for Applicant

Lieberman & Brandsdorfer, LLC
12221 McDonald Chapel Drive
Gaithersburg, MD 20878-2252
Phone: (301) 948-7775
Fax: (301) 948-7774
Email: rocky@legalplanner.com

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